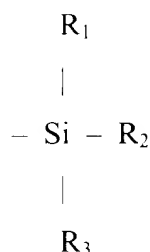


This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

- 1-7. (previously cancelled)
8. (currently amended) A composition comprising a nucleic acid, a polysaccharide or a saccharide, a lipid, an antibody or a non-biopolymeric small molecule covalently bound to a compound having the formula:  $R_1-X-R_2$ , wherein  $R_1$  is a cyclic ether group,  $R_2$  is an alkoxysilane group; and X is a moiety linking the cyclic ether group and the alkoxysilane group.
9. (previously amended) The composition of claim 8, wherein the biological molecule comprises a nucleic acid.
10. (previously amended) The composition of claim 8, wherein the biological molecule comprises a polysaccharide or a saccharide.
11. (previously amended) The composition of claim 8, wherein the biological molecule comprises a lipid.
12. (previously amended) The composition of claim 8, wherein the biological molecule comprises a small molecule.
13. (previously amended) The composition of claim 8, wherein the cyclic ether group comprises an epoxide group.
14. (previously amended) The composition of claim 13, wherein the epoxide group comprises an ethylene oxide.
15. (previously amended) The composition of claim 8, wherein the alkoxysilane is selected from the group consisting of  $-Si(OCH_3)_3$ ,  $-Si(OC_2H_5)_3$ ,  $-Si(OCH_3)_3$ ,  $-Si(OCH_3)H_2$ ,  $-Si(OCH_3)(CH_3)_2$ , and  $-Si(OCH_3)_3)_2CH_3$ .
16. (previously amended) The composition of claim 8, wherein the compound is 3-glycidoxypentyltrimethoxysilane.
17. (currently amended) A modified biological molecule covalently bound to a compound having the formula:  $R_1-X-R_2$ , wherein  $R_1$  comprises an amino group,  $R_2$  comprises an alkoxysilane group soluble in solution; and X comprises a moiety linking the amino group and the alkoxysilane group.
18. (previously added) The modified biological molecule of claim 17, wherein the biological molecule comprises a polypeptide or a peptide.

19. (previously added) The modified biological molecule of claim 17, wherein the biological molecule comprises a polysaccharide or a saccharide.
20. (previously added) The modified biological molecule of claim 17, wherein the biological molecule comprises a lipid.
21. (previously added) The modified biological molecule of claim 17, wherein the biological molecule comprises a small molecule.
22. (previously added) The modified biological molecule of claim 17, wherein the amino group is a primary amine.
23. (currently amended) The modified biological molecule of claim 17, wherein the alkoxy silane is selected from the group consisting of  $-\text{Si}(\text{OCH}_3)_3$ ,  $-\text{Si}(\text{OC}_2\text{H}_5)_3$  and

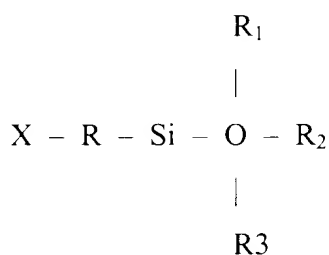


wherein  $\text{R}_1$ ,  $\text{R}_2$  and  $\text{R}_3$  are selected from the group consisting of  $-\text{H}$ ,  $-\text{CH}_3$ ,  $-\text{OCH}_3$ , and  $-\text{OC}_2\text{H}_5$ , and at least one of  $\text{R}_1$ ,  $\text{R}_2$  or  $\text{R}_3$  is either  $-\text{OCH}_3$  or  $-\text{OC}_2\text{H}_5$ .

24. (previously added) The modified biological molecule of claim 17, wherein the compound is 3-aminopropyltriethoxysilane.
25. (currently amended) A microarray comprising:  
a an underivatized solid support, and  
modified biological molecules covalently bound to a compound having the formula:  $\text{R}_1-\text{X}-\text{R}_2$ , wherein  $\text{R}_1$  comprises an amino group,  $\text{R}_2$  comprises an alkoxy silane group; and  $\text{X}$  comprises a moiety linking the amino group and the alkoxy silane group, immobilized onto the underivatized solid support.
26. (currently amended) The microarray of claim 25, 84, 85 or ~~claim 826~~, wherein the solid support comprises hydroxyl groups.
27. (currently amended) The microarray of claim 25, 84, 85 or ~~claim 826~~, wherein the solid support comprises glass.

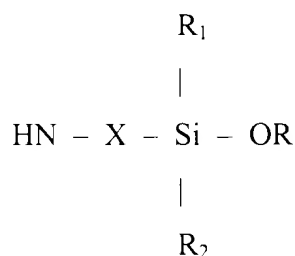
28. (currently amended) The microarray of claim 25, 84, 85 or ~~claim 826~~, wherein the solid support comprises a surface selected from the group consisting of a quartz, a mica, an alumina, a titania, an SnO<sub>2</sub>, an RuO<sub>2</sub>, and a PtO<sub>2</sub>.
29. (currently amended) The microarray of claim 25, 84, 85 or ~~claim 826~~, wherein the solid support comprises a metal oxide surface.
30. (currently amended) The microarray of claim 25, 84, 85 or ~~claim 826~~, wherein the solid support comprises a compound selected from the group consisting of a polystyrene, a polyester, a polycarbonate, a polyethylene, a polypropylene, and a nylon.
31. (currently amended) The microarray of claim 25, 84, 85 or ~~claim 826~~, wherein biological molecules are immobilized onto the solid support in orderly, discrete spots.
32. (currently amended) The microarray of claim 25 ~~or 82~~, wherein the discrete spots are about 50 microns in diameter.
33. (previously amended) A modified biological molecule, wherein the biological molecule is prepared by a process comprising the steps of:
- (a) providing a biological molecule comprising a guanine base or a cytosine base;
  - (b) reacting the guanine base or the cytosine base with N-bromosuccinimide at pH about 8.0 to form a brominated biological molecule; and
  - (c) reacting the brominated biological molecule with a silane having the formula –HN—(CH<sub>2</sub>)<sub>n</sub>—Si(OR)<sub>3</sub>, wherein n = 3, 4, 5, 6, 7, 8 or 9.
34. (previously added) The modified biological molecule of claim 33, wherein R is selected from the group consisting of –CH<sub>3</sub>, –C<sub>2</sub>H<sub>5</sub>, and –C<sub>3</sub>H<sub>7</sub>.
35. (previously added) A modified biological molecule, wherein the biological molecule is prepared by a process comprising the steps of:

- (a) providing a biological molecule;
- (b) providing a compound having a formula



wherein X is a halide and R is a moiety linking the biological molecule with the Si moiety;

- (c) reacting the biological molecule with the compound of step (b) at near neutral pH.
36. (previously added) The modified biological molecule of claim 35, wherein the halide is selected from the group consisting of a Cl, a Br, and an I.
37. (previously added) The modified biological molecule of claim 35, wherein the R group is selected from the group consisting of a  $-\text{OCH}_3$ , and a  $-\text{OC}_2\text{H}_5$ .
38. (previously added) The modified biological molecule of claim 35, wherein the compound of step (b) is selected from the group consisting of 8-bromocyltrichlorosilane, 8-bromocyltromethoxysilane, 4-chlorobutylmethyldichlorosilane, and 3-iodopropyltrimethoxysilane.
39. (previously amended) A modified biological molecule covalently bound to a compound having the formula:  $-\text{HN}-(\text{CH}_2)_n-\text{Si}(\text{OR})_3$ , wherein  $n = 3, 4, 5, 6, 7, 8$  or  $9$ .
40. (previously added) The modified biological molecule of claim 3, wherein R is selected from the group consisting of  $-\text{CH}_3$ ,  $-\text{C}_2\text{H}_5$ , and  $-\text{C}_3\text{H}_7$ .
41. (previously added) A modified biological molecule, wherein the biological molecule covalently bonded to a compound having the formula:

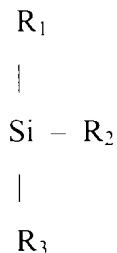


wherein R is selected from the group consisting of  $-\text{CH}_3$ ,  $-\text{C}_2\text{H}_5$ , and  $-\text{C}_3\text{H}_7$ , and  $\text{R}_1$  and  $\text{R}_2$  are the same or different and are selected from the group consisting of  $-\text{H}$ ,  $-\text{CH}_3$ ,  $-\text{C}_2\text{H}_5$ ,  $-\text{OCH}_3$ ,  $-\text{OC}_2\text{H}_5$ ,  $-\text{C}_3\text{H}_7$ , and  $-\text{OC}_3\text{H}_7$ ; and X is a linking group comprising an at least partially aliphatic chain.

42-62. (previously cancelled)

63. (previously amended) A modified biological molecule comprising a biological molecule covalently bound to a compound having the formula:  $\text{R}_1-\text{X}-\text{R}_2$ , wherein  $\text{R}_1$  comprises a cyclic ether, wherein  $\text{R}_2$  is a  $\text{NR}_3$ ,  $\text{R}_3$  comprises a  $-\text{H}$  or an alkyl group and X comprises a moiety linking the cyclic ether group and the alkoxysilane group.

64. (currently amended) A modified biological molecule comprising a biological molecule covalently bonded to a compound having the formula:



wherein  $R_1$ ,  $R_2$  and  $R_3$  are the same or different and are selected from the group consisting of  $-OCH_3$ ,  $-OC_2H_5$ ,  $-C_2H_7$ , and  $-Cl$ ; and X is a moiety linking the biological molecule to the compound.

65-77. (previously cancelled)

78. (previously added) The composition of claim 8, wherein the nucleic acid comprises an RNA or a DNA.

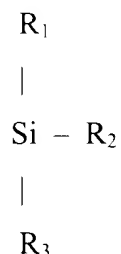
79. (previously added) The modified biological molecule of claim 17, wherein the biological molecule comprises a nucleic acid.

80. (previously added) The modified biological molecule of claim 79, wherein the nucleic acid comprises an RNA or a DNA.

81. (previously added) The modified biological molecule of claim 18, wherein the polypeptide is an antibody.

82. (previously added) A composition comprising a nucleic acid, a polysaccharide or a saccharide, a lipid, an antibody or a small molecule covalently bound to a compound having the formula:  $R_1-X-R_2$ ; wherein  $R_1$  is a cyclic ether, wherein  $R_2$  comprises a  $-NR_3$ ,  $R_3$  comprises a  $-H$  or an alkyl group and X comprises a moiety linking the cyclic ether group and the alkoxysilane group.

83. (currently amended) A composition comprising a nucleic acid, a polysaccharide or a saccharide, a lipid, an antibody or a small molecule covalently bonded to a compound having the formula:



wherein  $R_1$ ,  $R_2$  and  $R_3$  are the same or different and are selected from the group consisting of  $-OCH_3$ ,  $-OC_2H_5$ ,  $-C_2H_7$ , and  $-Cl$ ; and  $X$  is a moiety linking the biological molecule to the compound.

84. (currently amended) A microarray comprising:

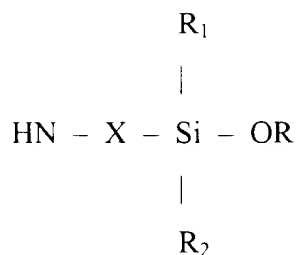
a solid support, and

modified biological molecules comprising a nucleic acid, a polysaccharide or a saccharide, a lipid, an antibody or a non-biopolymeric small molecule covalently bound to a compound having the formula:  $R_1-X-R_2$ , wherein  $R_1$  is a cyclic ether group,  $R_2$  is an alkoxysilane group; and  $X$  is a moiety linking the cyclic ether group and the alkoxysilane group, immobilized onto the solid support.

85. (previously amended) A microarray comprising:

a solid support,

a plurality of biological molecules covalently bonded to a compound having the formula:



wherein  $R$  is selected from the group consisting of  $-CH_3$ ,  $-C_2H_5$ , and  $-C_3H_7$ , and  $R_1$  and  $R_2$  are the same or different and are selected from the group consisting of  $-H$ ,  $-CH_3$ ,  $-C_2H_5$ ,  $-OCH_3$ ,  $-OC_2H_5$ ,  $-C_3H_7$ , and  $-OC_3H_7$ ; and  $X$  is a linking group comprising an at least partially aliphatic chain, immobilized onto the solid support.

Applicants: Bradley *et al.*  
U.S.S.N. 09/546,085

86. (previously added) A microarray comprising:  
a solid support, and  
a plurality of modified biological molecules covalently bound to a compound having the  
formula:  $\text{—HN—(CH}_2\text{)}_n\text{—Si(OR)}_3$ , wherein  $n = 3, 4, 5, 6, 7, 8$ , or  $9$ .